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Environmental microbiology mcqs with answers pdf

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To eliminate the plant at the site, you can try burning it (**A**), spraying fungicide on the leaves (**B**), collecting the part in a bag and dipping it in boiling water (**C**), or uprooting the plant (**D**). The correct answer is **(C)**. Regarding the microorganisms, Rhizobium (**B**) is the correct answer. These bacteria help fix nitrogen in the soil. The transmission of Clostridium sp. can occur through vector transmission (**A**), but Rhizobium is primarily soil-borne (**B**). In soil science, the S horizon (**D**) refers to the layer that contains minimal organic matter and high amounts of iron and aluminum oxides. Plant resistance (**D**) is a form of modification that occurs in response to pathogens. This can be achieved through various mechanisms such as plant immunization, modification of host, or modification of reservoirs. The correct answer for the type of resistance is immunization (**D**). Plants (**B**) are not plastic, but they do undergo cell division, enlargement, and death. Laterite (**B**) is a type of soil that forms in tropical regions through the weathering of limestone. Increased cell division (**A**) is an important process in plant growth and development. This can be influenced by various factors such as hormones, light, and temperature. The correct answer for the type of fungal spore is black sooty spore masses (**D**). Banana Bunchy Top Viral disease (**A**) is a real disease that affects banana plants. Fusarium oxysporum (**B**) is a fungus that can infect various crops, including cereals and bananas. The correct answer for the type of soil is Vertisol (**B**). Ustilago scitaminea (**D**) is a fungus that causes Panama disease in bananas. Black (**A**) is not a type of soil, but rather a color. Xanthomonas citri (**C**) is a bacterium that causes citrus canker. The correct answer for the type of insect is both useful and harmful insects (**C**). Aphids (**D**) are sap-sucking insects that can be found on various plants. Plasmopara viticola (**A**) is an oomycete that causes grapevine downy mildew. Cercospora personatum (**B**) is a fungus that causes leaf spot disease in many crops. Fusarium oxysporum (**C**) is a fungus that can infect various plants, including bananas and cereals. The correct answer for the type of insect is aphids (**D**). Propoxur (**A**) is an insecticide that is used to control pests like ants and cockroaches. Environmental Microbiology is a discipline that focuses on understanding the roles and interactions of microorganisms in various environments. This knowledge helps maintain environmental quality, supports sustainable development, and contributes to human health. The field of Environmental Microbiology draws from microbiology principles and applies them to study microorganisms in their natural settings. It encompasses physiology, genetics, and ecological interactions within these microorganisms, providing a broad understanding of how they function within the environment. Environmental Microbiology plays a crucial role in addressing environmental issues by utilizing the capabilities of microorganisms for decontamination, bioremediation, and pollution control. This discipline also aids in developing methods to cultivate and apply microorganisms beneficially. Researchers in Environmental Microbiology study how microorganisms interact with their surroundings and each other. These studies have practical applications that include: - **Decontamination**: Using microorganisms to clean contaminated sites or materials. - **Bioremediation**: Applying microorganisms to break down harmful substances, making the environment safer. - **Pollution Control**: Utilizing microorganisms to prevent pollution by breaking down pollutants. Moreover, Environmental Microbiology is essential for maintaining human health. By understanding how microorganisms in the environment impact human health and vice versa, scientists can develop strategies for disease prevention and treatment. In summary, Environmental Microbiology is a vital field of study that bridges the gap between microbiology and environmental science, offering solutions to environmental issues while also improving public health. 1. Most microorganisms help to improve the quality of life. 2. A phage is a virus that infects bacteria. 3. The special characteristics that are suitable for all microorganisms are cells with distinct nuclei. 4. The common unit of microbial size is µm. 5. The main mode of reproduction of bacteria is fission. 6. Moisture contained in clouds and precipitated as snow, hail, rain, etc constitutes atmospheric water. 7. Gram-negative bacteria include Escherichia coli. 8. Pythium mold can produce zoospores. 9. Nitric acid bacteria rely on aerobic breathing to produce production. 10. The suitable pH for yeast growth is 5.0-6.0. 11. The chemical substrate for further metabolism in the tricarboxylic acid cycle is Acetyl CoA. 12. All nitrogenous bases, including cytosine and thymine, are found in DNA. 13. Microbial ecologists study the relationship between different microbial communities and their environment. 14. The main product of the ammoniation process in the soil is ammonia. 15. The most commonly used medium for culturing bacteria in the laboratory is beef extract, peptone medium. 16. Actinomycetes have basal mycelium that absorb nutrients and excrete metabolites. 17. Archaea include methanogens. 18. Microorganisms survive in arid environments due to spore formation. 1. **Gram Staining Components**: The dyes used in Gram staining are Saffron and Crystal Violet. 2. **Energy Sources for Microorganisms**: Chemoautotrophs provide energy through the oxidation of inorganic substances. 3. **Growth Factors Description**: Growth factors that cannot be synthesized by microorganisms but are necessary include amino acids, bases, and vitamins. 4. **Recreational Water Agent**: The most common agent causing illness associated with recreational water is Cryptosporidium parvum. 5. **Water Contaminant Producing Nerve Toxin**: The chemical contaminant that can be acted upon by microbes to produce a powerful nerve toxin lethal to humans is mercury. 6. **Potable Water Characteristics**: Potable water contains dissolved substances and chemicals, and is drinkable but not void of microbes in the sense that it might contain microbial pathogens. 7. **Hot Tub Infection Cause**: Pseudomonas aeruginosa leads to dermatitis from soaking in a hot tub due to its ability to survive high temperatures. 8. **Aquifer Groundwater Contamination Sources**: All of the mentioned sources (broken sewer lines, fertilizers used on farmland, defective well casing) could be sources of contamination of aquifers and groundwater. 9. **Sewage Water Treatment Steps**: The correct order for treating sewage water is holding ponds, filtering through sand or charcoal, chlorination or ozone treatment, followed by sludge removal and ultraviolet radiation application if needed. 10. **Fecal Contamination Indicator Microorganism**: Escherichia coli is the most common organism used as an indicator of fecal contamination in water. 11. **Method to Detect Microorganisms Viruses on Membrane Filters**: The polymerase chain reaction (PCR) method can be used to detect microorganisms and viruses on membrane filters. 12. **Detrimental Microbes Group**: There isn't enough information provided about the specific group of microbes detrimental in [the given context]. Here is the rewritten text: Degradation of carbon compounds into inorganic compounds during sewage treatment _____? A. Coliforms B. Lactose-producing organisms C. Photosynthetic organisms D. Gram-positive organisms Answer: _____ True or False MCQ on Environmental Microbiology 1. Prophage is a DNA fragment integrated into host DNA and cannot reproduce independently. Answer: _____ 2. Abnormal morphology of bacteria is an inherent characteristic of bacteria. Answer: _____ 3. Eukaryotic microorganisms can grow at high temperatures than prokaryotic microorganisms. Answer: _____ 4. Spores are reproductive organs of spore bacteria. Answer: _____ 5. Photosynthetic bacteria and cyanobacteria are phototrophic microorganisms that produce oxygen. Answer: _____ 6. Agar is a polysaccharide used to solidify bacterial culture medium. Answer: _____ 7. During decay period of microbial growth, rate of cell death exceeds rate of cell division. Answer: _____ 8. Thymine exists in RNA but not DNA. Answer: _____ 9. Optimum growth conditions for fungi are somewhat acidic. Answer: _____ 10. All nutrients that affect growth rate of microorganisms are called limiting factors. Answer: _____ Please note: The rewritten text does not contain any specific language other than the original text, and it maintains the same format and content as the original text.